

REMARKS

Claims 21-32 are pending. Claims 21, 27, 28, 29, and 32 have been amended. Reconsideration and allowance of the present application based on the above amendments and the following remarks are respectfully requested.

Claim Rejections Under 35 U.S.C. § 112

Claims 21-32 were rejected under 35 U.S.C. § 112, second paragraph. Claims 21, 27, 28, 29, and 32 have been amended in accordance with the suggestions of the Office Action. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claims 21-32 were rejected under 35 U.S.C. § 103(a) over Shibata et al. (U.S. Patent No. 6,008,539) in view of Shakuda (U.S. Patent No. 5,557,115) and Shibata et al. (U.S. Patent No. 6,191,436). Applicants respectfully traverse this rejection.

The instant application claims priority under 35 U.S.C. § 120 to U.S. Application 08/925,323, filed September 8, 1997. Thus, the earliest effective U.S. filing date of the instant application is September 8, 1997.

Shibata et al. '539 issued on December 28, 1999, which is after Applicants' September 8, 1997 effective U.S. filing date. Shibata et al. '539 thus qualify as prior art only under 35 U.S.C. § 102(e).

Shibata et al. '436 issued on February 20, 2001, which is after Applicants' September 8, 1997 effective U.S. filing date. Shibata et al. '436 thus qualify as prior art only under 35 U.S.C. § 102(e).

Shibata et al. '539 and Shibata et al. '436 are both on their face assigned to Toyoda Gosei Co., Ltd. The instant application is assigned to Toyoda Gosei Co., Ltd at reel/frame 011290/0144. Shibata et al. '539, Shibata et al. '436 and the instant application are thus commonly assigned.

Under 35 U.S.C. § 103(c), subject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

As Shibata et al. '539 and Shibata et al. '436 may not be used as prior art under 35 U.S.C. § 103(c), the Office Action fail to establish a *prima facie* case of obviousness and must be withdrawn.

Claims 22-32 are allowable for at least the reasons indicated above by virtue of their dependence on independent claim 21. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Conclusion

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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Enclosure: Appendix

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 21, 29, and 32 have been amended as follows:

21. (Amended) A method of manufacturing a light-emitting device, said method comprising:

forming a light-emitting layer comprised of $\text{In}_X\text{Ga}_{1-X}\text{N}$ on a sapphire substrate,

wherein the light-emitting layer has an indium mole fraction X and emits light of wavelength (nm) = $1239.8/E_g$ (eV), [over a sapphire substrate;] such that the emitted light has an energy level $E_g < 3.4 * (1 - X) + 1.95 * X - 1.0 * X * (1 - X)$.

27. A method according to claim 21, said method further comprising:

disposing a buffer layer comprising AlN on the sapphire substrate;

interposing a first clad layer comprising n-GaN between the buffer layer and the light-emitting layer; and

forming a second clad layer comprising p-GaN doped with magnesium over the light-emitting layer.

28. A method according to claim 27, said method further comprising:

disposing a transparent electrode comprising gold on the second clad layer; and

disposing an electrode pad on the first clad layer.

29. (Amended) A method according to claim 27, said method further comprising:

interposing a layer comprising $\text{Al}_X\text{In}_Y\text{Ga}_{1-X-Y}$ (including X=0, Y=0, X=Y=0) between the light emitting layer and the second clad layer,

wherein said interposed layer has a wide band gap and is doped with an acceptor[, between the light-emitting layer and the second clad layer].

32. (Amended) A method according to claim 27, said method further comprising:

growing the layers [wherein the layers are grown] as crystals by a metal organic vapor phase epitaxial growth method with nitrogen, ammonia and alkyl compound gases containing a group III element.